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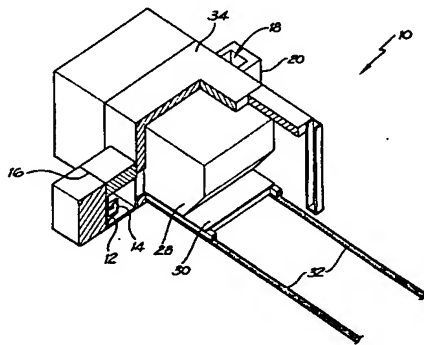
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(54) Title: RADIOGRAPHIC EQUIPMENT



(57) Abstract: The invention concerns radiographic equipment. The equipment includes a source of substantially mono-energetic fast neutrons produced via the deuterium-tritium or deuterium-deuterium fusion reactions, comprising a sealed-tube or similar generator for producing the neutrons. The equipment further includes a source of X-rays or gamma-rays of sufficient energy to substantially penetrate an object to be imaged and a collimating block surrounding the neutron and gamma-ray sources, apart from the provision of one or more slots emitting substantially fan-shaped radiation beams. Further included is a detector array comprising a multiplicity of individual scintillator pixels to receive radiation energy from the sources and convert the received energy into light pulses, the detector array aligned with the fan-shaped beams emitted from the source collimator and collimated to substantially prevent radiation other than that directly transmitted from the sources reaching the array. Conversion means are included for converting the light pulses produced in the scintillators into electrical signals. Conveying means are included for conveying an object between the sources and the detector array. Computing means are included for determining from the electrical signals the attenuation of the neutrons and the X-ray or gamma-ray beams and to generate output representing the mass distribution and composition of the object interposed between the source and detector array. The equipment further includes a display means for displaying images based on the mass distribution and the composition of the object being scanned.

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